# Preserving Fish and Wildlife Habitat

Ecologically, shorelands are a living bridge between the aquatic world of lakes, rivers, and wetlands, and the terrestrial world of woodlands and grasslands. As roads and houses creep into shoreland areas, the behavior, reproduction, and survival of animals can be affected as human activities and structures degrade the surrounding wildlife habitat. Although researchers have estimated that animal habitat can be affected up to 1,500 feet away from human activities and structures, preserving and restoring shoreland vegetation can limit the effects.[1] How shorelines are managed will determine how attractive it is to fish, birds, and other wildlife.

## *Fish communities*

- The proportion of muskies, smallmouth bass, darters and other species intolerant of poor water quality decreased on lakes with more overall development and more polluted runoff, a 1997 DNR/UW-Stevens Point study of 17 Wisconsin lakes.[2]

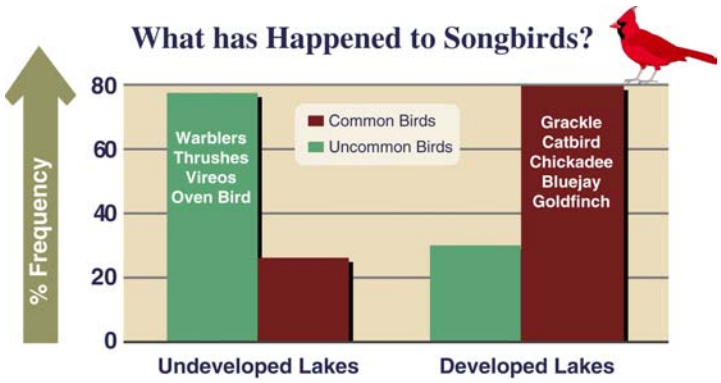
- Bluegill in lakes surrounded by cottages grew at one-third the rate of bluegill in lakes with no cottages around the shore, and populations in undeveloped lakes were more than twice as productive as those of lakes surrounded by cottages, according to a UW- Madison study of 14 lakes near Boulder Junction.[3]

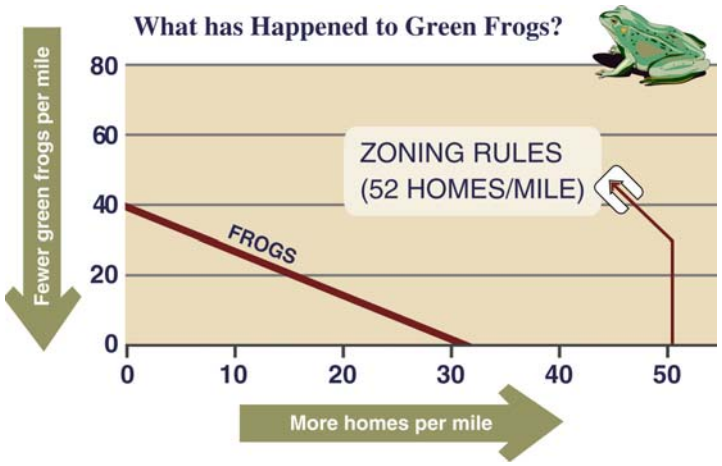
- Black crappie and largemouth bass were more likely than expected to nest near undeveloped shorelines: only 24 of 897 crappie nests were near shorelines with any type of dwelling on it, although bass were more tolerant, according to a 1999-2000 Minnesota Department of Natural Resources study.[4]

- The rich diversity of aquatic plants found just offshore provide important habitat for fish. Some fish, like bluegills, graze directly on the plants' leaves and stems, while others feed on the bugs and other delicacies living on or beneath the plants. These shallow plant beds are also important spawning areas for a number of fish including bass, bluegills, and Northern pike. Researchers found in Wisconsin that developed shorelands had 83 % to 92 % fewer aquatic species than undeveloped shorelands. As the aquatic plants disappear, the fish and other animals that rely on them may not be too far behind.

## ***Songbird communities***

- Cowbirds, grackles and other common species became more numerous and songbirds less numerous along developed northern Wisconsin lakes, according to a 1990s study by DNR and Sigurd Olson Environmental Institute researchers comparing developed and undeveloped northern Wisconsin lakes.[5]



### *Amphibian Communities*

- Current state standards allow over 50 homes per mile of shoreland in unsewered areas and over 80 per mile in sewered areas. Studies have shown that green frog populations decline with increasing density of shoreland development, and disappear altogether around approximately 30 homes per mile of shoreland.[6]

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Sources

[1]Duerksen, C.J., D.L. Elliott, N.T. Hobbs, E. Johnson, and J.R. Miller. 1997. *Habitat Protection Planning: Where the Wild Things Are*. American Planning Association. Washington, D.C.

[2]Jennings, M., M.A. Bozek, G. Hatzenbeler, E. Emmmons, and M. Staggs. 1999.*Cumulative Effects of Incremental Shoreline Habitat*. North American Journal of Fisheries Management.

[3]Schindler, D., S. Geib, M. Williams. 2000. *Patterns of Fish Growth along a Residential Development Gradient in North Temperate Lakes.* Ecosystems.